

like structure. These vary more or less but are seldom larger than represented in the plate, which shows three of the different forms noticed. The two petal-like lobes at the apex of each style-branch are in *I. Hookeri* usually spreading rather than slightly overlapping as was noticed to be the case in specimens of *I. versicolor* observed at Cutler.

The fruit of *I. Hookeri*, which matures fully two weeks earlier than that of *I. versicolor*, is broader, shorter, and thinner-walled. It is always beakless and is sometimes rather bluntly triangular while at others, especially when young, it is inclined to be sharply angled.

The plants grow in great abundance on the farm of Mr. W. R. Corbett of Cutler, who told us that since Dr. Kennedy called his attention to the two species last year he had been watching them and now had no difficulty in telling them apart, even in the dark, by simply feeling of the pods. It is not easy to imagine a more beautiful sight than that formed by thousands of these plants growing as they do along the summits of the cliffs, often making blue areas which can be seen for a long distance.

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EXPLANATION OF PLATE 39.—*Iris Hookeri*: fig. 1, flowering branch; fig. 2, leafy branch; fig. 3, bud; figs. 4, 5, 6, petals; fig. 7, side view of petal; fig. 9, young fruit; fig. 10, cross-section of the same; fig. 11, older fruit; fig. 12, cross-section of the same. *Iris versicolor*: fig. 8, petal.

NOTES ON VERMONT MOSSES.

A. J. GROUT.

SINCE the publication of the supplement to my Vermont Mosses I have spent two summers in the state and have collected copiously each season.

I have found several species not before reported from the state and have also been able to verify several of Frost's doubtful reports so that it seems probable that his list is entirely reliable.

The collections from Newfane have been of special interest to me as they are mostly from places familiar to me from childhood and over which I had passed times without number.

SPECIES NEW TO THE STATE.

Fissidens incurvus Schwaegr. On stones in brook, Newfane.

Ditrichum vaginans (Sulliv.) Hampe. Newfane.

Orthotrichum sordidum S. & L. Butternut tree in dooryard, Newfane.

Bryum affine (Bruch.) Lindb. Mt. Holly, Eggleston.

B. pseudotriquetrum (Hedw.) Schwaegr. Willboughby, Faxon.

Thuidium microphyllum (Sw.) Best. Decayed log in moist woods, Newfane.

Amblystegium subtile (Hedw.) B. & S. Bark at base of maple tree, Stratton.

Hylocomium brevirostre (Ehrh.) B. & S. North exposure of Baker Brook Ravine. On rocks and soil, Newfane.

Hylocomium squarrosum (L.) B. & S. Cold swamps, altitude of 1500–2000 ft., Stratton, Stowe, Johnson.

Hypnum fertile Sendt. Rotten log, north exposure of Baker Brook Ravine.

From the descriptions I had supposed this species to be near *H. reptile*, but it is much more likely to be mistaken for *H. crista-castrensis* from which it differs in its more slender habit. Sterile it would readily be confused with *H. imponens* but it is lighter in color and has strongly curved capsules.

Hypnum fluitans var. *atlanticum* Renaud in the Journal of Botany for August, 1901. This new variety was described from Britain and the continent so that this is the first and only collection from America. The specimens were collected in swampy places under the spruces near the Summit House, Mt. Mansfield. The original description and notes were reprinted in full in the March, 1902, BRYOLOGIST. The specimens were determined by M. Renaud.

Hypnum pallescens (Hedw.) B. & S. Bases of fir stumps and trees in mountain woods. Mt. Mansfield, Stratton. Closely allied to *H. reptile* and sometimes found growing in the same locality. But *H. pallescens* is a mountain species with shorter capsules, leaves less closely appressed and strongly secund at the tips of the branches.

Hypnum Patientiae Lindb. Nearly if not quite all of the Vermont mosses previously referred to *H. pratense* should be referred here. This species is not rare but is likely to be confused with *H. curvifo-*

lium because both have their capsules strongly costate when dry.

Hypnum uncinatum forma *plumosa* Sch. Det. Renauld. Stones in and near small rivulet, Baker Brook Ravine, Newfane.

Fontinalis Cardoti Ren. Det. Cardot. This is Mr. Pringle's specimen labeled *F. Lescurii*, Enosburg, June 18, 1880.

Dichelyma capillacea (L.) B. & S. Stems of *Cephalanthus* in swamp, Newfane. This was reported by Frost but no specimens could be found.

NEW LOCALITIES FOR RARE OR INTERESTING SPECIES.

¹ *Fissidens minutulus*. Damp rocks, Newfane.

Dicranum montanum. On rotten log, Newfane.

Schistostega osmundacea. Occurring in great abundance under the sill of an old shed on the underpinning of stones and earth; Newfane. The protonema of our American *Schistostega* ends in flask-like cells, which I have not seen illustrated in any European work.

Leptobryum pyriforme. Not rare in damp shaded places. Basement wall north side of the old St. Joseph's College Building, Burlington.

Mnium orthorrhynchum. Moist ravine, Newfane.

Thelia asprella. On old apple-tree stump, Newfane. A careful search of the vicinity failed to discover another lot of this species.

Thuidium paludosum. Soil in Higbee Swamp, Burlington.

Amblystegium Lescurii. Stones in brook with *Fissidens incurvus*, Newfane.

Amblystegium irriguum. Stones in brook, Newfane.

Hylocomium Pyrenaicum. Newfane.

Hypnum cordifolium. Frequent in swampy mountain woods.

H. molluscum. On humus, Glebe Mt., Newfane.

H. ochraceum. Stones in brook, Stratton.

Plagiothecium Muellerianum. Crevices of ledges in ravine, Newfane.

Leskea nervosa. Base of trees in open woods, Newfane.

Plagiothecium turfaceum. Frequent in Newfane.

Brachythecium glaciale from Willoughby, Faxon, proves to be *B. reflexum*.

¹ Authorities as in my list of Vermont Mosses.

Eurhynchium strigosum so far collected in Vermont is var. *robustum* Roell.

Bryhnia graminicolor. Willoughby, Dr. Kennedy. Newfane.

Porotrichum Alleghaniense. Wet overhanging rocks, Newfane.

Rhynchostegium serrulatum. On soil, Higbee swamp, Burlington. Newfane.

Entodon repens. Newfane.

Pylaisia velutina. On trees, Stowe.

Homalia Jamesii. Not infrequent on cool shaded rocks in moist situations.

Leucodon sciuroides. Not uncommon.

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SEED DISPERSAL OF *VIOLA ROTUNDIFOLIA*.

R. G. LEAVITT.

AT maturity the capsule of the violet slowly opens. Each of the three boat-shaped valves holds several smooth, hard, oval seeds. As the fruit dries and the sides of the valves draw together more and more strongly, the seeds are squeezed with increasing force. At length they escape from the pressure and are at the same instant thrown to a distance. The end seeds in each valve fly out first, according to Kerner, and the rest follow in orderly succession at intervals. The distance attained by the seed-missiles of this catapult fruit is given by the authority mentioned as a little over three feet in the case of *Viola canina*, for which alone figures are given. We have at present in the garden of native plants at North Easton a violet, *V. rotundifolia*, which puts Kerner's species to shame in this matter of seed dispersal. Young plants from the spring crop of self-sown seeds have now grown to such a size that they may be definitely recognized by the round leaf; and they form a living chart of the points to which the seeds were thrown. The parents occupy a pocket or small bed marked off by a circle of stones. In an adjoining pocket, within one or two feet of the home plantation, the offspring have come up freely. At a distance of a little more than 5 feet there are three seedlings. And there is one young plant 9 feet,